

## A new species of the genus *Cricula* WALKER, 1855 from East Timor (Lepidoptera: Saturniidae)

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**Abstract:** A new species of the South-East Asian genus *Cricula* WALKER, 1855 is described: *Cricula timorensis* sp. n. from East Timor. The male holotype and its genitalia are figured in colour. It will be donated to the Museum für Naturkunde at Humboldt-University of Berlin, Germany. *C. timorensis* is compared with its closest relatives, *C. hayatae* PAUKSTADT & SUHARDJONO, 1992, *C. maxalorensis* NAUMANN & LÖFFLER, 2010 and *C. luzonica* JORDAN, 1909.

**Key words:** Saturniidae, *Cricula*, new species, East Timor, Indonesia.

### Eine neue Art der Gattung *Cricula* WALKER, 1855 aus Ost-Timor (Lepidoptera: Saturniidae)

**Zusammenfassung:** Eine neue Art der südostasiatischen Gattung *Cricula* WALKER, 1855 wird beschrieben: *Cricula timorensis* sp. n. aus Ost-Timor. Der männliche Holotypus und seine Genitalstrukturen werden farbig abgebildet; der Falter aus der Sammlung des Erstautors gelangt in das Zoologische Museum an der Humboldt-Universität zu Berlin. *C. timorensis* wird von seinen nächsten Verwandten, *C. hayatae* PAUKSTADT & SUHARDJONO, 1992, *C. maxalorensis* NAUMANN & LÖFFLER, 2010 sowie *C. luzonica* JORDAN, 1909, abgegrenzt.

## Introduction

The genus *Cricula* was described by WALKER (1855); its type species (by monotypy) is *Saturnia trifenestrata* HELFER, 1837. Major works on the genus were provided by JORDAN (1909), ROEPKE (1940) and NÄSSIG (1989; revision 1995). Since then, several more species and subspecies were described, and, eventually, most recently the astonishing number of 15 new taxa was introduced to science by NAUMANN & LÖFFLER (2010). The morphological aspects used for specific diagnoses were partly supported by results found in the BOLD project of the University of Guelph, Canada (see RATNASINGHAM & HEBERT 2007).

The positioning of the different entities within the resulting BOLD taxon tree resulted in some new ideas of grouping within the genus *Cricula*, as already mentioned in NAUMANN & LÖFFLER (2010): *C. hayatae* PAUKSTADT & SUHARDJONO, 1992 (Figs. 3, 4) from Flores island and *C. maxalorensis* NAUMANN & LÖFFLER, 2010 (Figs. 5, 6) from Alor and Pantar islands, all Lesser Sunda Islands of Indonesia, and the Philippine species-complex of *C. luzonica* JORDAN, 1909 (Figs. 7, 8) appear to form a group of closely related taxa. These somehow unexpected barcode similarity results for those taxa are partially supported by the overall similar external morphology, e.g., the pattern and prominent forewing apex of the ♂♂; but not by ♂ genitalia structures which differ much for the Philippine taxa. Due to this and zoogeographic reasons such a relationship was generally not considered

by earlier authors (e.g. NÄSSIG 1995: 46, 48).

In this current work another member of this group from Timor Island, Lesser Sunda Islands, is described as new.

## Description of the new *Cricula* species

### *Cricula timorensis* sp. n.

**Holotype** ♂: (Figs. 1, 2): East Timor, Bobanaro, 9°0'40" S, 125°21'49" E, 970 m, 31. x. 2002, M. D. LANE leg., dissection no. 2180/10 NAUMANN, barcode SNB 1553, received from D. LANE III. 2010, coll. S. NAUMANN. — A red holotype label will be fixed. The holotype will be deposited in the Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.

**Paratype:** 1 ♂, same data as holotype, but 30. xi. 2002, coll. D. LANE, Atherton. — A blue paratype label will be added.

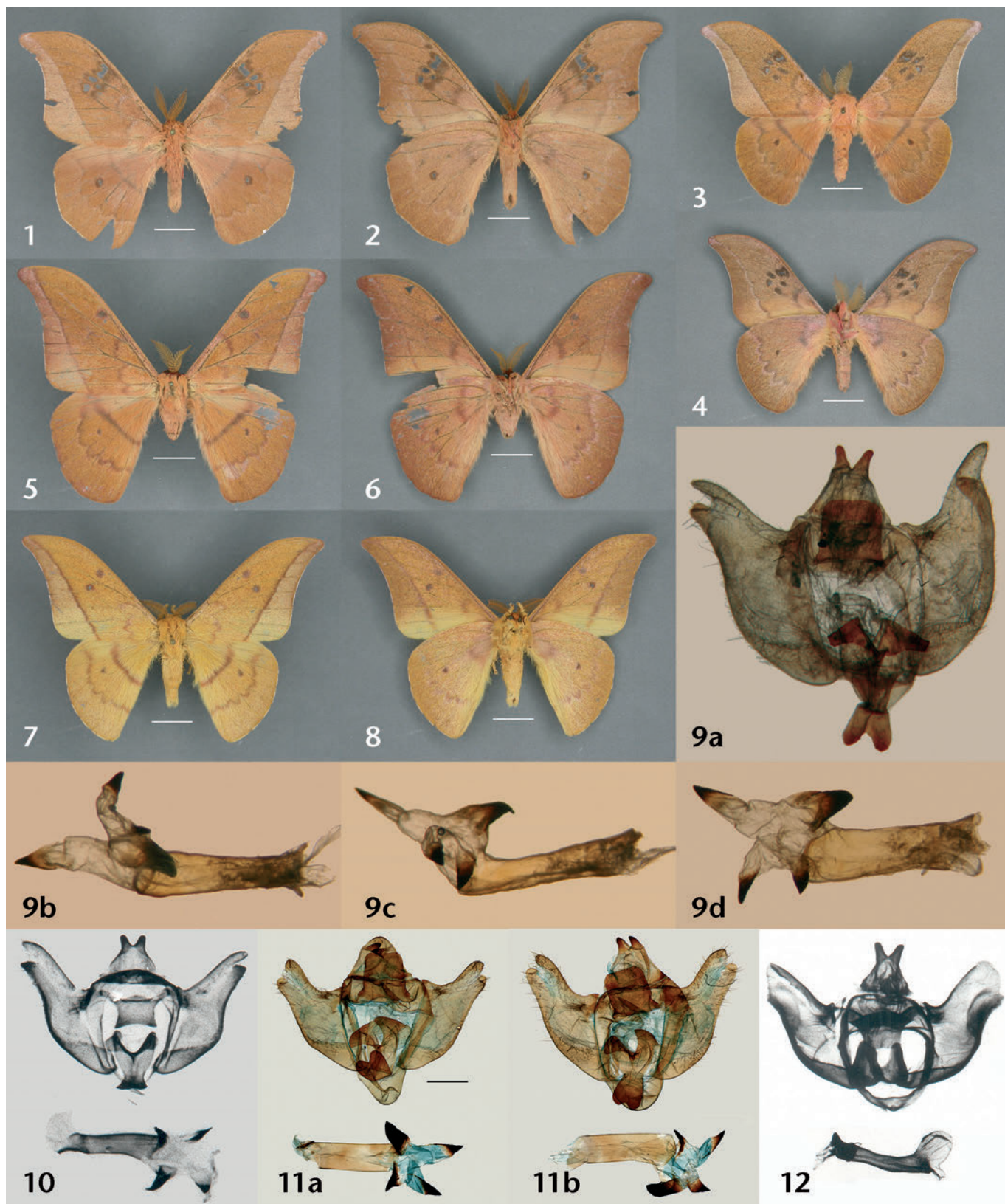
**Etymology:** The species is named after its origin, the island of Timor.

## Diagnosis

*Cricula timorensis* sp. n. is one of the largest *Cricula* species, showing 4–5 forewing fenestrae plus additional grey shadow around these (only 2 specimens known for the variability), plus well separated ante- and postmedian lines on the hindwing. It is, according to the barcode similarity results, the closest relative of *C. hayatae* which is smaller, has a more acute forewing apex, and more variation in number of ♂ forewing fenestrae and colour. *C. maxalorensis* is of same size as *C. timorensis*, but always has only one or no forewing fenestrum, confluent ante- and postmedian lines of the ♂ hindwing, and differences in ♂ genitalia structures.

## Description

♂ (Figs. 1, 2): Forewing length, measured from basis to apex, 40 mm (both holotype and paratype). The wings are of a more compact and rectangular form than in the other species mentioned above. Length of antennae 9.0 mm, longest rami 2.1 mm, with 26 segments in total, quadripectinate up to the last 4 segments; antennae are of ochreous colour and without scaling. Both dorsal and ventral sides of the specimen are of reddish-grey brown ground colour, on ventral side a little lighter. Head, thorax, abdomen and wings in their dorsal antemedian and median area in ground colour, the markings of dark grey colour. Antemedian zigzag line of the forewing quite faint, the postmedian line almost straight, a little bent outward apically. Postmedian area lighter than ground colour, suffused with lots of greyish-white scales. The median area of the forewing has a patch of 4 fenestrae, circled by a dark grey shadow. The two most



**Figs. 1–8:** Specimens of *Cricula*: **Fig. 1:** *C. timorensis* sp. n., East Timor, male holotype, dorsal view. **Fig. 2:** same specimen, ventral view. **Fig. 3:** *C. hayatae*, Flores Island, male paratype, dorsal view. **Fig. 4:** same specimen, ventral view. **Fig. 5:** *C. maxalorensis*, Alor Island, male holotype, dorsal view. **Fig. 6:** same specimen, ventral view. **Fig. 7:** *C. luzonica*, Luzon Island, male, dorsal view. **Fig. 8:** same specimen, ventral view. — All specimens in coll. S. NAUMANN, figured approximately to the same scale (compare scales, scale bar = 1 cm). — **Figs. 9–12:** ♂ genitalia structures of *Cricula*. **Figs. 9a–d:** *C. timorensis* sp. n., genitalia no. 2180/10 SNB, **b–d:** phallus in different views. **Fig. 10:** *C. hayatae*, Flores, genitalia no. 885/95 W. A. NÄSSIG (from NÄSSIG 1995, modified). **Fig. 11a:** *C. maxalorensis*, genitalia no. 2101/10 SNB. **Fig. 11b:** *C. maxalorensis*, genitalia no. 2102/10 SNB. **Fig. 12:** *C. luzonica*, Luzon, genitalia no. 647/90 W. A. NÄSSIG (from NÄSSIG 1995, modified). — Genitalia not to the same scale.

similar species *C. maxalorensis* and *C. hayatae* differ by the number of the fenestrae, with *C. hayatae* having 0–5 and *C. maxalorensis* 0–1 only. The hindwing has a central hyaline fenestrum, circled with dark greyish border.

The ante- and postmedian lines are widely separated from each other, even more widely than in *C. hayatae*, while they are always fused near to the upper margin in *C. maxalorensis*. The outer margin of the wings with



white fringes. Ventral side of same colour, suffused with some white scales. Antemedian and postmedian lines are much fainter, the antemedian line of greyish-violet colour, the postmedian indicated more or less as a light grey shadow.

♂ genitalia (Figs. 9a–d): Uncus with two strongly sclerotised, almost triangular rounded tips which are bent to ventral side. Gnathos broad, strongly sclerotised as well, and almost rectangular. Juxta with two lateral bent triangular processes, which end in a rectangular tip and show a dentate upper margin. Sella bent dorsally, ending in two lateral sclerotised rounded processes. The dorsal process of the valves long and slender, the little smaller ventral one with two tips. There appears also an internal, knob-like process of the valves, situated almost basally on the dorsal part. The sacculus is prominent, the sacculus broad and round. Vesica emerging to dorsal side, with four processes of almost similar length, each with a triangular hardly sclerotised tip, the left mediodorsal one being most prominent. The ♂ genitalia of *C. hayatae* (Fig. 10) differ mainly by shorter and more widely separated processes of the uncus, an indented gnathos, different form of the juxta, and much more acute processes of the vesica. *C. maxalorensis* (Figs. 11a, b) has a shorter uncus, the processes of the juxta are rounded to lateral side, shorter and not dentate. The vesica has shorter bulbs with also smaller and more acute processes. The genitalia of *C. maxalorensis* are generally somewhat smaller than those of *C. timorensis*. The Philippine complex of *C. luzonica* (Fig. 12) shows very different genitalia structures, with different juxta and missing sclerotised processes of the vesica (compare NÄSSIG 1989, 1995, NÄSSIG & TREADAWAY 1998 and NÄSSIG & TREADAWAY, in preparation).

The female remains unknown.

### Saturniidae of Timor Island

So far most Saturniidae material examined originated from the Indonesian part of Timor Island. PAUKSTADT & PAUKSTADT (1993) mentioned *C. hayatae* reared from cocoons which were collected on *Psidium guajava* L. (Myrtaceae) at Gunung Mutis of West Timor; these most likely should be representatives of the here described *C. timorensis*. During the 2002 Australian UN mission in East Timor after independence of that country from Indonesia, M. D. LANE (and later, in 2004, he and his father, the coauthor of the present publication) collected some saturniids which have since lead to the description of the endemic species *Antheraea lorosae* LANE, NAUMANN & LANE, 2004. With the description of *C. timorensis*, the following Saturniidae species are recorded from Timor Island thus far (either from East Timor or the Indonesian western part of the island or from both parts):

1. *Attacus dohertyi* ROTHSCHILD, 1895,

2. *Samia kikibudiamini* U. PAUKSTADT, L. H. PAUKSTADT & SUHARDJONO, 2002,
3. *Actias groenendaeli* ROEPKE, 1954 (*sensu lato*),
4. *Antheraea lorosae* M. D. LANE, NAUMANN & D. A. LANE, 2004,
5. and *Cricula timorensis*.

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